

IN THE SPECIFICATION:

1. Please amend the following paragraphs starting on page 3, line 15 as follows:

According to this wiring structure, the extent of an electromagnetic field generated by the signal line may become smaller. As a result, electromagnetic induction caused in other signal lines adjacent to the signal line due to the electromagnetic field is minimized.

In the wiring structure according to the first aspect, the groove may be located at a nearly center position of the facing surface. Alternatively, the facing surface may be provided with a plurality of the grooves. If so, the extent of the electromagnetic field generated by the signal line may become much smaller. As a result, ~~it may be more effectively restrained that the electromagnetic induction is caused in the adjacent signal lines~~ can be more effectively restrained.

2. Please amend the following paragraph starting on page 8, line 24 as follows:

Figs. 2A, 2B, 2C and 2D are sectional views of transmission lines, each of which shows the structure of the grooves formed on the facing surfaces of the signal line 1 and the ground line 2. Each of the transmission lines is composed of the signal line 1, the ground line 2, and the dielectric 3 interposed between the signal line 1 and the ground line 2. ~~As same as the case of~~ Similar to that shown in Fig. 1, each of the signal line 1 and the ground line 2 has a groove extending in the transmission direction on its surface

facing the other line.

3. Please amend the following paragraphs starting on page 9, line 25 as follows:

Figs. 3A, 3B and 3C are sectional views of other transmission lines, each of which shows the structures of a groove and a cutout formed on the facing surfaces of the signal line 1 and the ground line 2, respectively. The cutout can be formed by forming the groove from the facing surface toward the opposite surface till the groove penetrates the line. Alternatively, the cutout may be formed from the opposite surface toward the facing surface till it penetrates the line. Fig. 3A shows an example of the cutout, which is formed from the surface opposite to the surface having the groove, namely the surface of the signal line 1 not-facing the ground line 2. Each of Figs. 3B and 3C shows an example of the cutout, which is formed from the surface having the groove, namely the surface of the signal line 1 facing the ground line 2. In each of Figs. 3A to 3C, the cutout is formed only in the signal line 1. However, the cutout may be formed in the ground line 2, and not in the signal line 1. Alternatively, each of the signal line 1 and the ground line 2 may be provided with the respective cutout.

When the current changes, the lines of magnetic force 6 are generated or ~~extinguished~~ eliminated. Due to the change of the lines of magnetic force 6 such that the lines of magnetic forces are generated or ~~extinguished~~ eliminated, namely due to the change of the magnetic field, there is generated a induction current in ~~the~~ a direction which prevents the magnetic field from being changed. Due to the induction current, the

current tends to flow through a region that is less affected by the magnetic field. In general, the faster the change of the current becomes, that is the larger the vibration frequency becomes, the larger the induction current becomes.

4. Please amend the following paragraphs starting on page 10, line 23 as follows:

Figs. 4A, 4B and 4C are views explaining the skin effect. Fig. 4A shows two electric wires 5 (current lines) and lines of magnetic force 6 generated by the electric wires 5. The electric wires 5, in which currents flow in the same direction ~~directions to each other~~, generate the lines of magnetic force 6 orienting in the same direction ~~directions~~. When the electric wires 5 are adjacent to each other, they affect each other. When the currents in the electric wires 5 flow upward in the directions perpendicular to the sheet plane of Fig. 4A in the steady state, the lines of magnetic force 6 orienting counterclockwise are generated in the sheet plane by the currents. As shown in Fig. 4A, the lines of magnetic force 6 generated by the two electric wires 5 orient in the opposite directions to each other in the region between the two electric wires 5. Therefore, the lines of magnetic force 6 generated by the two electric wires 5 negate each other in the region between the two electric wires 5 so that the lines of magnetic force 6 has an oblong shape surrounding the two electric wires 5.

When the current changes, the lines of magnetic force 6 are generated or

eliminated. Due to the change of the lines of magnetic force 6 such that the lines of magnetic forces are generated or eliminated, namely due to the change of the magnetic field, there is generated a induction current in the a direction ~~to prevent~~ which prevents the magnetic field from being changed. Due to the induction current, the current tends to flow through a region less affected by the magnetic field. In general, the faster the change of the current becomes, the larger the vibration frequency becomes, the larger the induction current becomes.

Each of Figs. 4B and 4C shows the state of the current flowing in each of portions in one signal line, the signal line being divided into nine portions. When the current changes, the uniform current distribution shown in Fig. 4B may be distorted. The reason for this is that it is difficult for the current to flow through the central portion of the signal line which is easily affected by the magnetic field due to other currents because the induction current is generated as described above. Therefore, as shown in Fig. 4C, the current flowing through the corner portions and peripheral portions in the signal line may become more, because the portions are less affected by the magnetic field due to the current flowing through the adjacent lines. Such a phenomenon that the current density in the peripheral portions of the conductor becomes larger is referred to the skin effect. In particular, the skin effect remarkably ~~appears~~ occurs for the high-frequency. The skin effect is expressed by the following expression 1.

5. Please amend the following paragraph starting on page 13, line 7 as follows:

Each of Figs. 5A and 5B shows the current distribution in the transmission line pair. Fig. 5A shows the current distribution in the stacked pair line. Fig. 5B shows the current distribution in the micro strip line. In each of them, a signal line 11 faces a ground line 12. In the transmission line pair, ~~an~~ a non-uniform current distribution is caused due to the skin effect. The regions with oblique lines 10 denote portions having higher current densities in comparison with the other portions. In each of Figs. 5A and 5B, it is illustrated such that nothing exists between the signal line 11 and the ground line 12. However, in fact, a dielectric ~~exists~~ exists between the signal line 11 and the ground line 12. ~~As the dielectric, for example~~ For example, dielectrics such as glass, epoxy resin, Teflon or ceramic may be used.

6. Please amend the following paragraph starting on page 14, line 4 as follows:

According to Gauss's law, the lines of electric force always meet at right angles with the lines of magnetic force. The lines of electric force start from the positive electric charges in the conductors, and end at the negative electric charges. When the lines of electric force cross to the surface of the conductors, ~~they~~ lines of electric force are normal to the surface if uniform electric potentials prevail in the conductors. However, ~~they~~ the lines of electric force incline to the region in which electric charge distribution is higher. The lines of magnetic force in the clockwise directions, which are perpendicular to the

direction along which the current flows through the electric wire, are generated so as to surround the electric wire. The lines of electric force and the lines of magnetic force are distributed in the space so as to hold intervals with the adjacent lines of electric force and the adjacent lines of magnetic force respectively, in accordance with the minimum energy law. In accordance with the electric charge density or the current, the density of the lines of electric force and the density of the lines of magnetic force are increased or decreased.

7. Please amend the following paragraph starting on page 23, line 16 as follows:

In the wiring structure shown in Fig. 9B, if the electrostatic capacity caused by the power supply lines 43 and the ground lines 44 is made larger, it the wiring structure can act as a by-pass capacitor. The wiring structure is very effective for transmitting signals at high speed because it can act as a by-pass capacitor. The wiring structure shown in Fig. 8, 9A or 9B may be stacked to form a wiring structure of a multi-layer type.

8. Please amend the following paragraphs starting on page 20, line 8 as follows:

In the wiring structure, the dielectric 34 is disposed on the upper surface (main surface) of the substrate 35. The signal lines 31 face the ground lines 32 in the dielectric 34. The signal lines 31 and the ground lines 32 form a pair of transmission lines ~~line~~. Each of the signal lines 31 and the ground lines 32 is provided with grooves extending in the transmission direction on the facing surfaces thereof. The facing surfaces are

perpendicular to the upper surface of the substrate 35. Alternatively, the grooves may be provided only on the signal lines 31 or the ground lines 32. The surface output portion 33 for the signal lines 31 is used for picking up the signals in the signal lines 31 to the surface side. Because the surface output portion 33 for the signal lines 31 is exposed outward at the surface of the dielectric 34, a flip chip can be connected to the surface output portion 33. On the substrate 35, the dielectric 34 surrounds the signal lines 31, the ground lines 32 and the surface output portion 33 for the signal lines 31.

In the wiring structure, the signal lines 31 are less affected by the electromagnetic field of the other adjacent signal lines 31. The reason is that ~~as follows.~~ That is, the indexes of the spatial distributions of strength of the electric field and strength of the magnetic field are the density of the field lines of electric force and the density of the field lines of magnetic force. In the stacked pair line or the micro strip line, the space, in which the density of the lines of electric force and the density of the lines of magnetic force are higher, radially extends from the lateral open portions of the pair lines.